**PATENT**

Atty Docket No.: 200310012-1
App. Ser. No.: 10/769,137

## IN THE CLAIMS:

*Please find below a listing of all of the pending claims. The statuses of the claims are set forth in parentheses.*

1. (Currently Amended)  A method for extracting demographic information, comprising:

initiating a dialog between a contact and a call handling system;

selecting a set of demographic characteristics;

assigning a set of acoustic confidence scores to the demographic characteristics;

assigning a set of substantive confidence scores to the demographic characteristics, wherein assigning substantive confidence scores includes:

presenting the contact with a set of multiple choice questions associated with the demographic characteristics;

collecting a set of responses to the multiple choice questions from the contact, wherein the set of responses includes a choice that the contact selected from the multiple choices;

comparing the contact's responses to a predefined body of multiple choice question responses associated with the set of demographic characteristics; and

assigning a set of multiple choice confidence scores to the demographic characteristics based on the comparison;

combining the acoustic, multiple choice, and substantive confidence scores for each of the demographic characteristics using at least one of a weighted linear summation and a weighted exponential; and

tailoring information presented to the contact using the set of combined confidence scores.

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2. (Original) The method of claim 1, wherein assigning substantive confidence scores includes:

    presenting the contact with a first substantive dialog;

    collecting a set of responses to the first substantive dialog from the contact;

    comparing the contact's responses to a predefined body of responses associated with the set of demographic characteristics; and

    assigning a first set of substantive confidence scores to the demographic characteristics.

3. (Original) The method of claim 2, wherein presenting includes:

    continuing to present the contact with the substantive dialog until one of the substantive dialog confidence score reaches a predetermined value.

4. (Original) The method of claim 2, wherein presenting includes:

    continuing to present the contact with the substantive dialog until a predetermined time period has expired.

5. (Original) The method of claim 2, wherein presenting includes:

    presenting the substantive dialog to the contact when the contact is placed on hold.

6. (Original) The method of claim 2, wherein assigning substantive confidence scores includes:

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presenting the contact with a second substantive dialog, in response to a request from

the call handling system;

    collecting a set of responses to the second substantive dialog from the contact;

    comparing the contact's responses to the predefined body of responses

    associated with the set of demographic characteristics; and

    assigning a second set of substantive confidence scores to the demographic

characteristics.


7. (Original) The method of claim 1, wherein assigning substantive confidence scores

includes:

    presenting the contact with a probing dialog;

    collecting a set of responses to the probing dialog from the contact;

    comparing the contact's responses to a predefined body of probing dialog responses

associated with the set of demographic characteristics; and

    assigning a set of probing dialog confidence scores to the demographic characteristics.


8. (Original) The method of claim 7, wherein presenting includes:

    asking the contact a set of questions associated with the demographic characteristics.


9-10. (Canceled).


11. (Original) The method of claim 1, wherein assigning acoustic confidence scores

includes:

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extracting an acoustic feature from the contact's speech signal; and

comparing the feature to a predefined body of speech signal features associated with

the set of demographic characteristics.


12. (Original)  The method of claim 1, wherein combining includes:

weighting the confidence scores using ground truth data.


13. (Original)  The method of claim 1, wherein weighting includes:

adjusting a first confidence scores weight for a given demographic characteristic if the

first confidence score differs from a second confidence score for that given demographic

characteristic by a predetermined amount.


14. (Original)  The method of claim 1, wherein combining includes:

multiplying together the confidence scores for each demographic characteristic.


15. (Original)  The method of claim 1, wherein combining includes:

combining the confidence scores for each demographic characteristic according to the

following formula:

$$S(C_i) = \sum_{j=1}^{N} r_j p_{ij}$$ (where N is a total number of classifiers, Ci is the i'th

demographic characteristic, and Pij is a confidence score for Ci generated by

Classifier j, and $r_j$ is trained weights).


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16. (Original) The method of claim 1, wherein combining includes:

combining the confidence scores from each classifier for each demographic

characteristic according to the following formula:

$$S(C_i) = \prod_{j=1}^{N} p_{ij}^{r_j}$$ (where N is a total number of classifiers, Ci is the i'th

demographic characteristic, and Pij is a confidence score for Ci generated by

Classifier j, and $r_j$ is trained weights).

17. (Original) The method of claim 1, wherein combining includes:

using a neural net to combine the confidence scores for each demographic

characteristic.

18. (Original) The method of claim 17, wherein the neural net is a Multiple Layer

Perception (MLP) network.

19. (Original) The method of claim 1, wherein tailoring includes:

identifying a sub-set of the demographic characteristics having combined confidence

scores exceeding a predetermined set of thresholds; and

presenting the contact with information specifically directed to contacts having the

sub-set of demographic characteristics.

20. (Original) The method of claim 19, wherein the predetermined threshold is equal to a

highest combined confidence score.

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21. (Original) The method of claim 1, wherein the demographic characteristics include

gender, age, accent, and stress level.

22. (Currently Amended) A method for extracting demographic information, comprising:

    initiating a dialog between a contact and a call handling system;

    selecting a set of demographic characteristics;

    assigning a set of acoustic confidence scores to the demographic characteristics;

    assigning a set of substantive confidence scores to the demographic characteristics;

    combining the acoustic and substantive confidence scores for each of the

demographic characteristics using at least one of a weighted linear summation and a weighted

exponential;

    tailoring information presented to the contact using the set of combined confidence

scores;

    presenting the contact with a probing dialog;

    collecting a set of responses to the probing dialog from the contact;

    comparing the contact's responses to a predefined body of probing dialog responses

associated with the set of demographic characteristics;

    assigning a set of probing dialog confidence scores to the demographic

characteristics;

    presenting the contact with a set of multiple choice questions;

    collecting a set of responses to the multiple choice questions from the contact,

wherein the set of responses to the multiple choice questions includes a choice that the

contact selected from the multiple choices;

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comparing the contact's responses to a predefined body of multiple choice question

responses associated with the set of demographic characteristics; and

assigning a set of multiple choice confidence scores to the demographic

characteristics.


23. (Currently Amended)  A computer-readable medium embodying computer program code

for commanding a computer to extract demographic information, comprising:

initiating a dialog between a contact and a call handling system;

selecting a set of demographic characteristics;

assigning a set of acoustic confidence scores to the demographic characteristics;

assigning a set of substantive confidence scores to the demographic characteristics, wherein

assigning the set of substantive confidence scores includes:

presenting the contact with a set of multiple choice questions associated with

the demographic characteristics;

collecting a set of responses to the multiple choice questions from the contact,

wherein the set of responses includes a choice that the contact selected from the

multiple choices;

comparing the contact's responses to a predefined body of multiple choice

question responses associated with the set of demographic characteristics; and

assigning a set of multiple choice confidence scores to the demographic

characteristics based on the comparison;

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combining the acoustic, multiple choice, and substantive confidence scores for each of the demographic characteristics using at least one of a weighted linear summation and a weighted exponential; and

tailoring information presented to the contact using the set of combined confidence scores.

24. (Currently Amended) A system for extracting demographic information, comprising a:

means for initiating a dialog between a contact and a call handling system; means for selecting a set of demographic characteristics;

means for assigning a set of acoustic confidence scores to the demographic characteristics;

means for assigning a set of substantive confidence scores to the demographic characteristics, wherein assigning a set of substantive confidence scores includes:

presenting the contact with a set of multiple choice questions associated with the demographic characteristics;

collecting a set of responses to the multiple choice questions from the contact, wherein the set of responses includes a choice that the contact selected from the multiple choices;

comparing the contact's responses to a predefined body of multiple choice question responses associated with the set of demographic characteristics; and

assigning a set of multiple choice confidence scores to the demographic characteristics based on the comparison;

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means for combining the acoustic, multiple choice, and substantive confidence scores for each of the demographic characteristics using at least one of a weighted linear summation and a weighted exponential; and

means for tailoring information presented to the contact using the set of combined confidence scores.

25. (Currently Amended) A system for extracting demographic information, comprising:

an Interactive Voice Response module for initiating a dialog between a contact and a call handling system, and selecting a set of demographic characteristics;

an acoustic classifier for assigning a set of acoustic confidence scores to the demographic characteristics;

a substantive classifier for assigning a set of substantive confidence scores to the demographic characteristics; and

a data combiner for combining the acoustic and substantive confidence scores for each of the demographic characteristics using at least one of a weighted linear summation and a weighted exponential;

a multiple choice classifier for assigning a set of multiple choice confidence scores to the demographic characteristics, wherein assigning the set of multiple choice confidence scores includes:

presenting the contact with a set of multiple choice questions associated with the demographic characteristics;

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      collecting a set of responses to the multiple choice questions from the contact,

wherein the set of responses includes a choice that the contact selected from the

multiple choices;

      comparing the contact's responses to a predefined body of multiple choice

question responses associated with the set of demographic characteristics; and

wherein the Interactive Voice Response module further tailors information presented to the

contact using the set of combined confidence scores.


26. (Previously Presented)  The system of claim 25, wherein the substantive classifier

includes: ·

      a probing dialog classifier for assigning a set of probing dialog confidence scores to

the demographic characteristics.

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